

NASA TECH BRIEF



NASA Tech Briefs announce new technology derived from the U.S. space program. They are issued to encourage commercial application. Tech Briefs are available on a subscription basis from the National Technical Information Service, Springfield, Virginia 22151. Requests for individual copies or questions relating to the Tech Brief program may be directed to the Technology Utilization Division, NASA, Code UT, Washington, D.C. 20546.

Multispectral Facsimile Reproducer

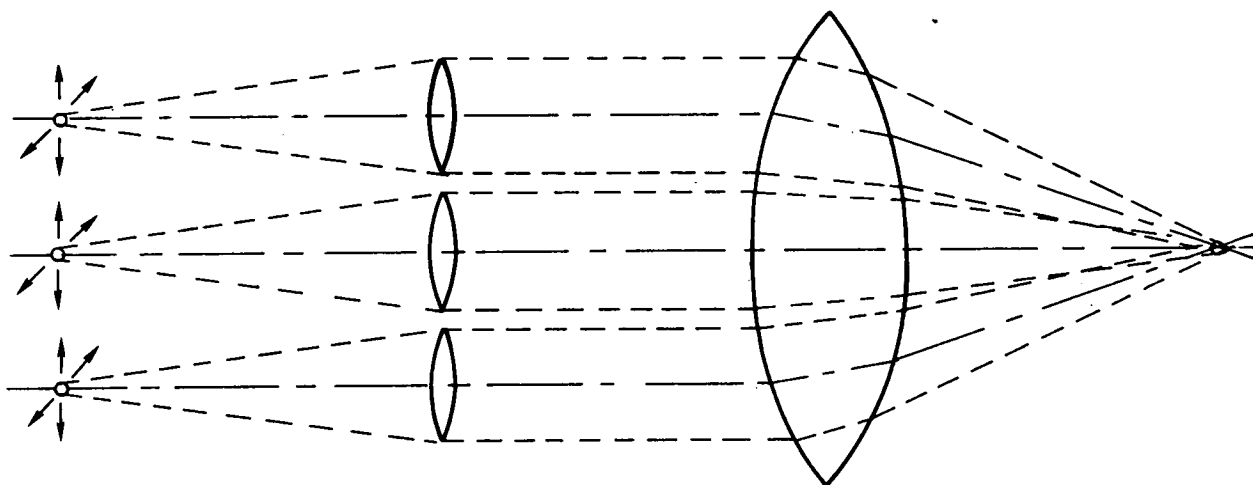


Figure 1. Optical Principle; Schematic

The ability of a monospectral (black and white) facsimile reproducer has been extended to record spatially well-registered true-color and false-color video data on tape. False-color is caused by a wavelength conversion occurring between the scene radiance and the film exposure.

Figure 1 shows the principle of the proposed optical configuration for the recording of spatially well-registered color on film. Each of several electrical signals, derived from different detector-filter combinations in the facsimile camera (Fig. 2A) and brought into proper spatial registration by electronic delays, modulates a different light source in the facsimile reproducer (Fig. 2B). The modulated radiation from each light source is passed through a separate filter and pinhole. Each pinhole is located at the focal point of a small lens which collimates the radiation. The collimated radiation is passed through a larger lens

which focuses these rays to a single point. Scanning with this point over a relatively slowly moving color film, in such a manner that successive line scans are contiguous, provides spatially well-registered color exposure of the film.

This optical arrangement also allows the light sources to be adjusted along the mirror scanning direction in such a manner that no electronic delays are required if the reproducer is operated synchronously with the camera. This scheme has operated successfully.

Note:

Requests for further information may be directed to:

Technology Utilization Officer
Langley Research Center
Hampton, Virginia 23365
Reference: TSP70-10360

(continued overleaf)

Patent status:

Inquiries about obtaining rights for the commercial use of this invention may be made to NASA Code GP, Washington, D.C. 20546.

Source: F.O. Huck and E.E. Burcher
Langley Research Center
(LAR-10618)

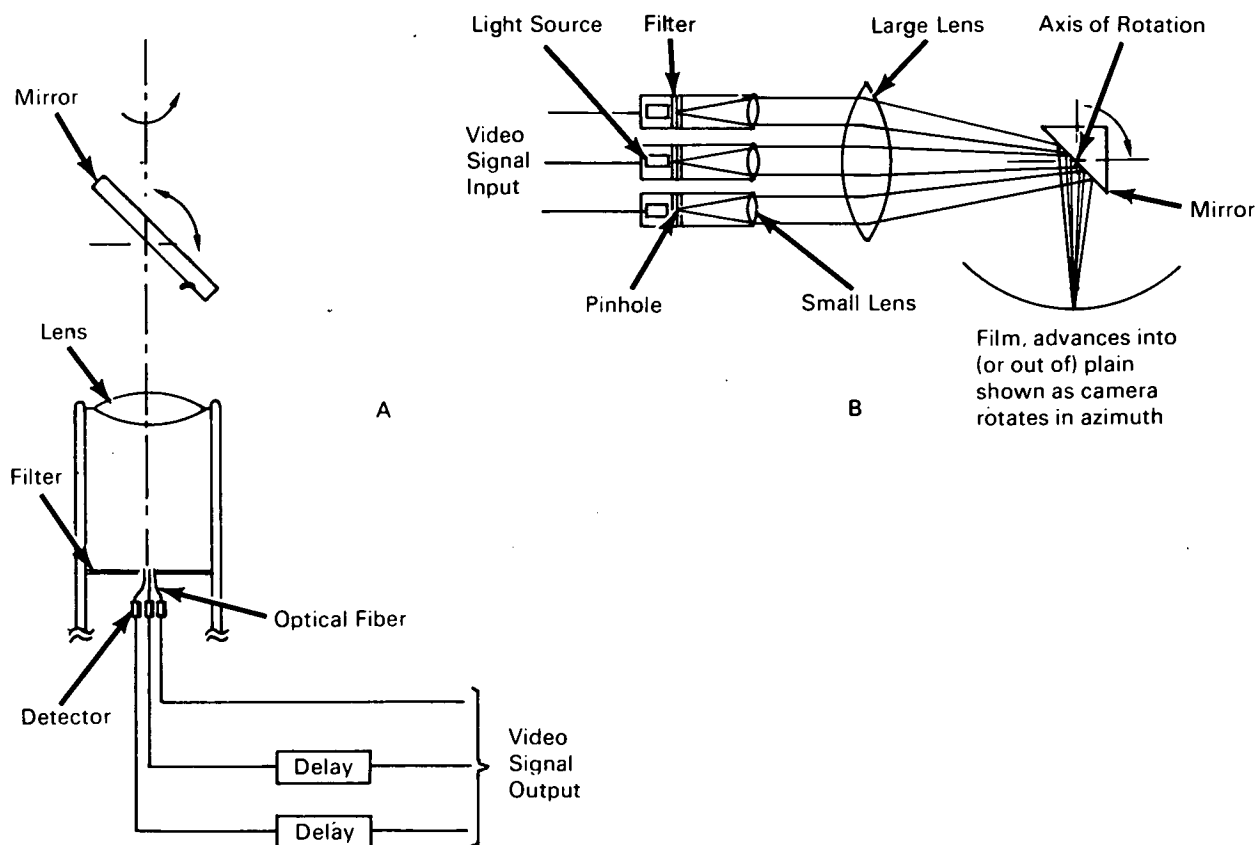


Figure 2. Configurations of Facsimile Camera for Multispectral Images (A) and Facsimile Reproducer (B); Schematic